

Special-Status Plant Propagation: Mojave and Colorado Desert Species

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Introduction

Introduction:

SCE Projects Overview

Special-status Plants

- Status
 - Range
 - Habitat
 - Life Cycle
 - Propagation Approach
 - Propagation Summary and Status
 - Lessons Learned
-

Summary



SCE Projects

DPV2 and EITP

- DPV2: spans 152 miles from Blythe to Menifee, CA along I-10
- 209 acres, 378 restoration areas and 509 non-restoration temporary impact areas
- EITP: spans 35 miles in Nevada and California
- 244 acres, 326 restoration areas



Special-status Plants

Special-status Plants

DPV2 - Coachella Valley Milkvetch *Astragalus lentiginosus* var. *coachellae*

Status: Federally endangered

Range: Limited to Coachella Valley

Habitat: Loose, aeolian or fluvial sand systems located on dunes or flats (narrow endemic)

Life Cycle: Annual or short-lived, facultative perennial



Special-status Plants

DPV2 - Coachella Valley Milkvetch *Astragalus lentiginosus* var. *coachellae*

Propagation

Approach: Seed collection in 2012 from 2 plants in planned impact areas; propagation in nursery (partner with Santa Ana Botanic Garden); out-plant; disperse seed

Propagation

Status: Completed; species did much better when seed dispersed in natural environment versus propagation and out-planting; in nursery, liked ½ native soil and ½ RSABG desert mix in small treeband



Special-status Plants

Coachella Valley Milkvetch *Astragalus lentiginosus* var. *coachellae*

March 2017

Two plants that were alive in 2016 grew again in 2017, and one had at least 200 fruits, with many more to come!

Lessons Learned

- CVMV very susceptible to root rot from heat/moisture
- Difficult to mimic natural conditions in nursery setting
- Does well with dispersed seed



Special-status Plants

EITP- Rosy Two-toned Beardtongue (*Penstemon bicolor* ssp. *roseus*)

<u>Status:</u>	CNPS List 1b
<u>Range:</u>	Mojave desert (CA, NV, AZ)
<u>Habitat:</u>	Rocky calcareous, granitic, or volcanic soils
<u>Life Cycle:</u>	Perennial herb that flowers in May



Special-status Plants

EITP- Rosy Two-toned Beardtongue (*Penstemon bicolor* ssp. *roseus*)

Propagation Approach

- Collect and disperse seed
- Propagate and out-plant

Propagation Status

- 3 separate propagation attempts
- Successfully out-planting in January 2017
- Plants outplanted in January 2016 experience herbivory and didn't survive
- No germination from seeding
- Ongoing



Special-status Plants

EITP- Rosy Two-toned Beardtongue (*Penstemon bicolor* ssp. *roseus*)

Lessons Learned

- More success with smaller plants in tree tubes
- Following outplanting, protection from herbivory and regular watering is key
- No germination from seed, so propagation is the way to go
- Water weekly for the first month and then can taper off
- Still watering about 1 time/month (10 gallons in basin – sandy soil)



Special-status Plants

EITP- White-margined Beardtongue (*Penstemon albomarginatus*)

<u>Status:</u>	CNPS List 1b
<u>Range:</u>	Mojave desert (CA, NV, AZ)
<u>Habitat:</u>	Loose desert sand, generally on stabilized dunes
<u>Life Cycle:</u>	Perennial herb that flowers in March through May



Special-status Plants

EITP- White-margined Beardtongue (*Penstemon albomarginatus*)

Propagation Approach

- Collect & disperse seed
- Propagate in a nursery
- Outplanting

Propagation Status

- Several propagation attempts (summer/winter/fall and ½ potting mix and ½ native soil)
- 1 inch X 7 inch tree tubes
- Seed dispersed, no germination
- Ongoing, outplanted 30 plants in May 2018; watered once a week for a month
 - now twice a month (4 gallons)



Special-status Plants

EITP- White-margined Beardtongue (*Penstemon albomarginatus*)

Lessons Learned

- Seed dispersal unsuccessful
- Seed viability may be an issue
- Could do better from cuttings/clones; however, first attempt to propagate from rhizomes was unsuccessful
- Recommend salvage prior to impacts
- Continued studies could provide further insight



Special-status Plants

EITP- Nine-awned Pappus Grass (*Enneapogon desvauxii*)

- Status: CNPS List 2b.2
- Range: Mojave Desert to Colorado and western Texas
- Habitat: Rocky slopes, crevices, calcareous soils, desert woodland
- Life Cycle: Perennial herb that flowers in August through September



Special-status Plants

EITP- Nine-awned Pappus Grass (*Enneapogon desvauxii*)



Special-status Plants

EITP- Nine-awned Pappus Grass (*Enneapogon desvauxii*)

Propagation Approach

- Collect & disperse seed; propagation for seed bulking

Propagation Status

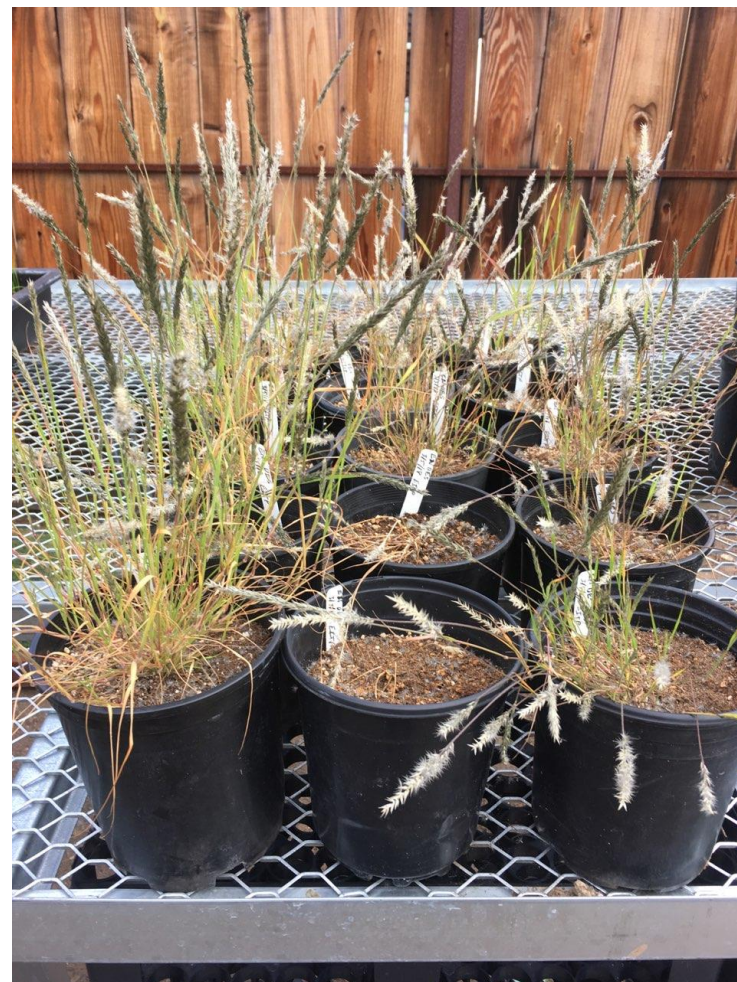
- Completed; seed dispersed and germinated in the field

Propagation Summary

- Collected seed in 2013
- Propagation in fall 2015 in 1-gallon pots for seed production
- 100 seeds sown, bulked to 2,300

Lessons Learned

- Need the right conditions for germination



Summary

- Avoid and minimize impacts to special-status plants whenever possible
- Set realistic expectations for mitigation
- Factor life history and specific habitat requirements into propagation approach
- Adaptive management required
- Document what you learn and share with others



Thank You!

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Questions?

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